

## 8. ABSTRACT

1 A twisted/splayed O-plate compensation device, in accordance with the  
2 invention, is comprised of an organic liquid crystal polymer thin film and possibly  
3 one or more other birefringent layers. The O-plate thin film is a birefringent medium  
4 with its optical symmetry axis, on average, oriented obliquely with the surface of the  
5 film. Within this constraint, the direction of the material's optical symmetry axis is  
6 allowed to vary continuously along the axis normal to the film surface. Such films  
7 may be fabricated by applying thin layers of chiral doped nematic or smectic liquid  
8 crystal monomer solutions in inert solvents to transparent substrates. The carrier  
9 solvents are then evaporated and the monomers polymerized by UV irradiation.  
10 Compensation devices may also be comprised of multiple layers of twisted/splayed O-  
11 plate material in conjunction with A-plates, C-plates, and simple O-plates.  
12 Fabrication techniques for twisted/splayed O-plates are described.

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